



164857

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

June 17, 2002

REPLY TO THE ATTENTION OF:

(SR-6J)

Mr. Steven D. Smith
Solutia, Inc.
P.O. Box 66760
St. Louis, Missouri 63166-6760

RE: Interim Groundwater Remedy Focused Feasibility Study
Sauget Area 2 Site - St. Clair County, Illinois

Dear Mr. Smith:

The United States Environmental Protection Agency (U.S. EPA) has completed its review of your June 4, 2002, response to U.S. EPA's May 22, 2002, comments on the Sauget Area 2 Interim Groundwater Remedy Focused Feasibility Study (FFS). U.S. EPA believes the response to comments is adequate for the purpose of finalizing the FFS. However, as previously mentioned in U.S. EPA's comment letter and as reflected in the enclosed Illinois Environmental Protection Agency comments on your responses, some issues still need further discussion and resolution, especially with regards to permitting and applicable or relevant and appropriate requirements (ARARs).

Pursuant to Section 2.5 of the November 24, 2000, Administrative Order on Consent, U.S. EPA approves the Sauget Area 2 Interim Groundwater FFS. If you have any questions regarding this letter, please feel free to call me at (312) 886-4592.

Sincerely,

A handwritten signature in black ink that reads "Mike Ribordy".

Mike Ribordy
Remedial Project Manager
Superfund Division

cc: Thomas Martin, USEPA
Sandra Bron, IEPA
Peter Barrett, CH2M HILL
Kevin de la Bruere, USFWS
Michael Henry, IDNR

bcc: Record Center ✓

ENCLOSURE

217/782-6762

June 16, 2002

Mr. Michael Ribordy
U.S. EPA Region 5
77 West Jackson Boulevard (SR-6J)
Chicago, Illinois 60604-3590

Re: 1631215032 St. Clair County
Sauget Area 2 Site
Superfund/Technical
Administrative Order by Consent dated November 24, 2000
Focused Feasibility Study/ Groundwater Contamination Near Site R

Dear Mr. Ribordy:

The Illinois Environmental Protection Agency ("Illinois EPA") received a copy of the Sauget Area 2 Sites Group ("SA2SG") response to the May 22, 2002, EPA comments on the Sauget Area 2 Interim Groundwater Remedy Focused Feasibility Study. The SA2SG response was dated June 4, 2002, and received on June 6, 2002. The May 22, 2002 EPA comments were on the revised draft "Focused Feasibility Study, Interim Groundwater Remedy, Sauget Area 2 Sites O, Q, R, and S, Volumes 1 and 2" ("FFS"), for the groundwater contamination near Site R, dated March 31, 2002.

I have reviewed the June 4, 2002 SA2SG response to the May 22, 2002 EPA comments and wish to offer follow-up comments as listed below. For clarification purposes, I have listed Illinois EPA comments, included in the May 22, 2002 EPA letter, and the June 4, 2002 SA2SG response to those comments. Illinois EPA Comments 4, 5, 8, 9, 13, 16, 17 (as referenced in the June 4, 2002 SA2SG submittal) were satisfactorily addressed and warrant no further discussion.

Illinois EPA Comment 1

Section 2.7

The treatability study shows, under the conditions of the study, that biological treatment is feasible for groundwater associated with Site R. Under the treatment configuration and loading conditions of the study, per cent removal of certain VOCs, SVOCs, herbicides, and BOD was documented. It is not clear, based on the summary information presented on the study, whether groundwater feed stored in the equalization tank resulted in preliminary volatilization of VOCs, affecting the influent loading and elevating the per cent removal of VOCs. Further, there is no comparison of influent characteristics for

Mr. Michael Ribordy

June 15, 2002

Page 2

the study (i.e., groundwater associated with Site R, 1992), and anticipated groundwater characteristics for the pumped discharge from the jet grout wall (i.e., groundwater quality data collected from the shallow, middle, and deep hydrogeological units in January and May 2000 were used for a data base for the local limits evaluation in Section 2.8). While the treatability study provides supporting information, Illinois EPA does not question the treatability of the groundwater. In previous correspondence (Illinois EPA to Michael Ribordy, February 15, 2002), Illinois EPA had asked whether the existing Sauget P Chem plant and existing public owned treatment works could treat the pumped groundwater at anticipated loading conditions in compliance with applicable regulations and permit limits. A loading evaluation would assist in this determination. Information that should be included in the loading evaluation is listed on the Attachment to this letter.

Illinois EPA Comment 2

Section 2.8

Section 2.8 is a summary of a local limits evaluation. It is not possible to perform a detailed review of the local limits evaluation because a copy of the evaluation was not provided, only a summary of the evaluation. Specific comments on the summary of the local limits evaluation are listed as follows:

(a) Under Step 5 (p. 2-89), the following screening criteria should not have been used to eliminate "constituents of concern":

- constituents with maximum concentrations lower than a water quality standard (with application of mixing zone dilution factors of 80, 230, and 2,820 to 1 for acute, chronic and human health water quality standards, respectively).*
- concentrations with maximum concentrations lower than the minimum inhibition criteria for heterotrophic or nitrification activated sludge.*

(b) Under Step 5 [6] (p.2-89), the percent removal to prevent pass through or inhibition was calculated for each constituent the survived the screening process. It is unclear how the percent removal relates to inhibition. Inhibition is a measure of the impact of influent concentrations and loading on the treatment process. Percent removal does not prevent inhibition.

(c) Under Step 5 [6], local limits removal required (p.2-90), it is inappropriate to use the groundwater treatability study (Section 2.7) to demonstrate performance for the American Bottoms Regional Wastewater Treatment Facility, because of different treatment configurations, different loading conditions, and different influent characteristics. Illinois EPA agrees the groundwater should be amenable to biological and carbon treatment, the real question is whether American Bottoms treatment process will be inhibited by the groundwater discharge, whether American Bottoms will have pass-through, and whether the Sauget P Chem plant is appropriate treatment technology

Mr. Michael Ribordy
June 16, 2002
Page 3

and treatment capacity to pretreat the groundwater discharge. See comment above regarding the loading evaluation.

(d) Under Step 5 [6] (p. 2-90), there is a reference to an NPDES permit renewal application submitted in October 2001 that included the proposed groundwater discharge. The NPDES permit application is a fairly voluminous submittal. Please provide exact reference(s) as to where the proposed groundwater discharge was included in the permit application.

(e) Under Step 5 [6] (p.2-90), reference is made to a discharge permit application to be submitted to American Bottoms in April 2002. Please note, in addition to any local permitting requirements, a State Construction permit is required from Illinois EPA pursuant to 35 Ill. Adm. Code 309.202 for the new sewer and wastewater source, based on information provided. This is not an activity exempt under Section 309.202 (NPDES Permit), because the NPDES permit for American Bottoms does not contain a Construction Authorization under Section 309.154.

Illinois EPA Comment 12

Section 5.2

p. 5-6. Under "Groundwater Treatment", reference is made to discharge permits and a local limits evaluation. Same comments as above for Section 2.6 and Section 2.7.

June 4, 2002 SA2SG Response to Comments 1, 2, 12

A discharge permit for the pumped groundwater needs to be obtained from the American Bottoms Regional Treatment Facility (ABRTF). ABRTF, the permit issuing authority, will issue a permit for this discharge that includes any necessary pre-treatment requirements to ensure compliance with its NPDES permit. Both IEPA and USEPA have the authority to review discharge permits issued by ABRTF. Permit review by IEPA and USEPA is the appropriate process for determining whether or not the ABRTF can accept this groundwater discharge.

Solutia has had a number of meetings with ABRTF to discuss the application for a discharge permit that was submitted by Solutia on March 18, 2002. These discussions have included consideration of the potential need for pretreatment and a preliminary exploration of alternatives to discharging to ABRTF in the event of an extended plant upset. Based on a preliminary review of the influent data proved in that application, ABRTF has not identified any issues that will categorically preclude the discharge of the extracted groundwater to the facility. Additional information has been requested by the facility and Solutia is in the process of collecting that information.

Illinois EPA Follow-Up Comments

Illinois EPA does not agree with the June 4, 2002 SA2SG response, for the following reasons:

- 1. Permitting authority does not solely rest with the local authority (ABRTF). In addition to any local permitting requirements, a State Construction Permit is required from Illinois EPA for the new sewer and wastewater source, as stated above. This is not exempt from State permitting requirements, under CERCLA, because it does not appear to be limited to on-site activity.**
- 2. Even if permitting authority were to rest solely with the local authority (ABRTF), the Illinois EPA, and for that matter, the U.S. EPA, would not review the local discharge permit as part of the local permit approval process.**
- 3. In the USEPA letter dated May 22, 2002, Solutia was directed to provide any additional information available and a summary of discussions with ABRTF. Illinois EPA requests a copy of the application for discharge permit that was submitted by Solutia to ABRTF on March 18, 2002, and copies of the additional information that Solutia is in the process of collecting at this time, as soon as it becomes available.**

The information requested by Illinois EPA in Comment 1 and Comment 2, were to assist in Illinois EPA's evaluation of whether Alternative B and Alternative C, specifically pertaining to the discharge of groundwater to ABRTF, would meet the nine CERCLA criteria, including overall protection of human health and environment, and implementability. They were not intended to supercede or replace any permit information requirements. The information requested above may duplicate information required by local and state permitting authorities.

- 4. SA2SG had previously indicated information on the proposed groundwater discharge was included in the NPDES permit renewal application. Illinois EPA asked where this information was located in the permit application. Illinois EPA again requests SA2SG provide specific references where this proposed discharge is included in the NPDES permit renewal application.**

Illinois EPA Comment 3

Section 3.0

p.3.2. The Illinois EPA does not agree that mass loading, gradient control, and reduction in fish tissue bioaccumulation are the only performance measures for the remedial action objectives. In previous correspondence (Sandra Bron to Michael Ribordy, February 15, 2002), the Illinois EPA recommended monitoring surface water and groundwater impacts, in addition to sediment toxicity monitoring. The primary remedial action objective of protecting the river, should be measurable in terms of reducing the impact of groundwater discharging to surface water to prevent surface water and sediment toxicity.

Mr. Michael Ribordy
June 16, 2002
Page 5

Illinois EPA Comment 7

Section 4.1.3

Same comment as Section 3.0.

Illinois EPA Comment 19

Section 5.2.1

Same comment as Section 3.0.

Illinois EPA Comment 21

Section 5.3.1

p.5-17. Same comment as above for Section 3.0.

June 4, 2002 SA2SG Response to Comments 3, 7, 19, 21

Existing sediment and surface water chemistry and toxicity data will be used to derive site-specific sediment and surface water concentrations that are protective of the environment. An Apparent Effects Threshold approach will be used to derive site-specific constituent concentrations for sediments and a Toxic Units approach will be used to derive site-specific constituent concentrations for surface water. However, it should be understood that it will likely take some time for the beneficial effects of the barrier wall and groundwater extraction system to be reflected in the sediment quality. Consequently, the primary criterion for evaluating the effectiveness of the barrier will be the hydraulic head measurements across the wall.

This toxicity-based monitoring approach will be incorporated into the FFS as indicated below:...

Illinois EPA Follow-Up Comments

Sections 3.0, 5.2.1, 5.3.1 language will need revision to be consistent with the above SA2SG response.

Illinois EPA requests clarification for what is meant by a Toxic Units approach used for deriving site-specific, protective constituent concentrations for surface water. Does this mean the surface water quality criteria, as measured by Whole Effluent Toxicity, is 1 Toxic Unit? It appears that, in addition to monitoring surface water samples for VOCs, SVOCs, Herbicides, Pesticides, and Metals, whole effluent toxicity monitoring is appropriate also.

Illinois EPA Comment 6

Section 3.3.3

p. 3-6. Action-specific ARARs 35 IAC 306.302 and 309.202 are applicable, rather than relevant and appropriate, and to be considered criteria, respectively.

Mr. Michael Ribordy
June 16, 2002
Page 6

Please note: comments on ARARs are provided herein, and in previous correspondence (Sandra Bron to Michael Ribordy, February 15, 2002), however a formal ARARs review has not been performed.

SA2SG Response to Comment 6

Discharge of pumped groundwater to the American Bottoms Regional Treatment Facility is not an expansion of existing or establishment of a new combined sewer service area (35 IAC 306.302). Therefore, it is a "relevant and appropriate" ARAR not an "applicable" ARAR.

35 IAC 309.202 is a permit requirement and , therefore, neither "applicable" or "relevant and appropriate" because permits are not required for work performed under CERCLA authority.

Section 3.3.3 of the FFS will be revised as shown below:...

Illinois EPA Follow-Up Comment

Based on current information, Illinois EPA believes a permit is required for the work to be performed under CERCLA authority, and 35 IAC 309.202 is an "applicable" ARAR.

Illinois EPA Comment 10

Section 5.2

p.5-5. Under "Physical Barrier", three partially penetrating groundwater recovery wells are proposed for installation inside the barrier wall to abate groundwater discharging to the wall. Explain why the groundwater recovery wells are partially penetrating rather than screened for the full saturated thickness of the recovery area above the bedrock. The groundwater recovery wells must be adequate number, location, and depth to recover sufficient groundwater to achieve remedial action objectives.

Illinois EPA Comment 20

Section 5.3

p.5-14. Under "Hydraulic Barrier", same comment as above for Section 5.2 "Physical Barrier" (p.5-5).

SA2SG Response to Comments 10, 20

Partial-penetration and the appropriate number of pumping wells were discussed in Volume 2-Design Basis and Design.

Illinois EPA Follow-Up Comment

It would be helpful to provide exact references in Volume 2 as to where this information was provided.

Illinois EPA Comment 11

Section 5.2

p. 5-6. Under "Groundwater Treatment", the groundwater extraction wells are to be connected to the sewer system through single wall thermally welded HDPE piping. Double wall piping was not considered necessary because HDPE pipe is not prone to leakage and any leakage would occur in an area of impacted groundwater. Although Illinois EPA does not argue that welded HDPE pipe is not prone to leakage, adequate QA/QC leakage (pressure) testing of the pipe upon installation, and on a regular basis following placement into operation, must be provided to verify the condition of the pipe and joints remain leak proof. The Illinois EPA does not agree that leakage is acceptable because it would be in an area of impacted groundwater, for the following reasons. First, the forcemain extends outside the barrier wall, so any leakage would not necessarily be captured by the barrier wall. Secondly, the discharge of untreated groundwater is not compliant with ARARs, even if it is to an area of impacted groundwater.

SA2SG Response to Comment 11

Section 5.2, Paragraph 1, Page 5-6 will be revised as shown below:

Groundwater Treatment-Extracted groundwater will be routed to the American Bottoms Regional Treatment Facility via subsurface pipeline installed in existing pipeline easements starting at the north end of Sauget Area 2 Site R and extending to the western boundary of Lot F. At the western boundary of Lot F, property owned by Solutia, the pipeline will turn south and connect with the Village of Sauget trunk sewer leading to the PChem Plant (Volume II-Design Basis and Design). Existing easements and access points for raw material and finished product pipelines allow ready installation of the extracted groundwater pipeline beneath the floodwall and railroad tracks and avoids the time consuming process of obtaining access and easements on alternative routes. Current plans call for using single wall, thermally welded, HDPE piping to connect the extraction wells to the sewer system. Double wall piping is not considered necessary or appropriate because welded HDPE pipe is not prone to leaking. To ensure pipeline integrity, pressure testing of the pipeline will be conducted on completion of construction, and every five years following placement into operation, to verify that the pipe and joints remain leak proof.

Illinois EPA Follow-Up Comment

The last sentence should be revised as follows: "To ensure pipeline integrity, pressure testing of the pipeline will be conducted on completion of construction, and

tested on a regular basis as necessary, but no less than every five years following placement into operation, to verify that the pipe and joints remain leak proof.

Illinois EPA Comment 14

Section 5.2

p. 5-7. Under "Groundwater Quality Monitoring", add "For estimating purposes," to "Groundwater samples will be collected quarterly for five years and semiannually thereafter."

SA2SG Response to Comment 14

Reducing the groundwater quality sampling frequency to twice a year after five years of quarterly sampling is considered appropriate. If the Agency considers a reduction in sampling frequency inappropriate during its five-year remedy review, it can require quarterly sampling to continue.

Illinois EPA Follow-Up Comment

The FFS is not the appropriate venue for establishment of groundwater monitoring frequency. The monitoring frequency in the FFS should be for estimating purposes only. The suggested language in Illinois EPA Comment 14 was in the previous draft of the FFS and should be reinstated.

Illinois EPA Comment 15

Section 5.2

p. 5-7. Under "Groundwater Quality Monitoring", the calculation of Organic Mass Loading for each hydrogeological unit, shall be determined for each organic constituent, rather than only for TOC. Similarly, the calculation of Inorganic Mass Loading for each hydrogeological unit (p.5-8), shall be determined for each inorganic constituent, rather than only for TDS. The Total Organic and Inorganic Mass Loadings would be the sums of the individual organic and inorganic constituents mass loadings for each hydrogeological unit, respectively. These comments also apply to the final paragraph under "Groundwater Quality Monitoring", p. 5-9.

SA2SG Response to Comment 15

TOC and TDS are better indicators of mass loading to the Mississippi River than the summation of the loads due to the discharge of each organic and inorganic constituent, respectively. Making this change will substantially increase the amount of work required to prepare and track groundwater monitoring data while at the same time reducing the effectiveness of the performance-monitoring program. For these reasons, it is not appropriate to change the groundwater-quality monitoring program in this manner.

Mr. Michael Ribordy
June 16, 2002
Page 9

Illinois EPA Follow Up Comment

The best indicators of total mass loadings are the sums of the individual constituent loads. This will require more effort than simply tracking TOC and TDS, but is only nominally more effort than determining total VOC concentrations, total SVOC concentrations, and total inorganic concentrations, which have been done in previous investigations. Further, it is anticipated this determination will only have to be done on a quarterly or less frequent basis. For these reasons, the groundwater monitoring program should be performed as recommended by Illinois EPA.

Illinois EPA Comment 18

Section 5.2

p. 5-10. Under "Bioaccumulation Monitoring", fish tissue samples are to be analyzed for SVOC's, herbicides, pesticides, metals, and percent lipids. Evaluate the need to add dioxin and PCBs to the parameter list.

SA2SG Response to Comment 18

Analysis of sediment, surface water and fish tissue samples collected from the plume discharge area downgradient of Sauget Area 2 Site R in October/November 2002, demonstrates that PCBs and Dioxin, both of which can bioaccumulate, are not migrating through the groundwater pathway and discharging to surface water:...

Illinois EPA Follow-Up Comment

Illinois EPA understands fish tissue sampling will be replaced with sediment and surface water monitoring.

Should you have any questions or comments on the contents of this letter, please feel free to contact me at 217/557-3199.

Sincerely,

Sandra Bron, Remedial Project Manager
National Priorities List Unit
Federal Site Remediation Section
Bureau of Land

Cc: Mike Henry, IDNR
Kevin de la Bruere, USFWS
Matthew Gluckman, USEPA
Terry Ayers, Manager, NPL Unit
Dean Studer, Bureau of Water
Landon Niedringhaus, Bureau of Water
Blaine Kinsley, Bureau of Water